

CLAIMS

1. A roping detector for a hydrocyclone having a separation chamber with an underflow discharge which under normal operating conditions is conical and impacts upon a splash skirt, comprising
5 a vibration sensor mounted on the splash skirt for detecting a change in the discharge indicative of roping.

2. The roping detector of Claim 1, wherein the vibration sensor
10 is an ultrasonic sensor.

3. The roping detector of Claim 2, wherein the ultrasonic sensor produces an output signal relative to a baseline threshold which is indicative of a condition of the underflow discharge.

4. A hydrocyclone with a roping detector, comprising a separation chamber with an underflow discharge which under normal operating conditions is conical, a splash skirt upon which the conical discharge normally impacts, and a vibration sensor mounted
15 on the splash skirt for detecting a change in the discharge indicative of roping.

5. The hydrocyclone of Claim 4, wherein the vibration sensor is an ultrasonic sensor.

6. The hydrocyclone of Claim 5, wherein the ultrasonic sensor produces an output signal relative to a baseline threshold which is indicative of a condition of the underflow discharge.

5 7. A method of detecting roping in a hydrocyclone having a separation chamber with an underflow discharge which under normal operating conditions is conical and impacts upon a splash skirt, comprising the step of monitoring vibration of the splash skirt to detect a change in the discharge indicative of roping.

10 8. The method of Claim 6, wherein the vibration is monitored with an ultrasonic sensor.

15 9. The method of Claim 8, further including the step of using the ultrasonic sensor to produce an output signal relative to a baseline threshold which is indicative of a condition of the underflow discharge.

20 10. A roping detector for a hydrocyclone having a separation chamber with an underflow discharge which under normal operating conditions is conical, comprising a splash skirt having a cylindrical side wall upon which the conical discharge impacts, and an ultrasonic sensor mounted on the side wall for detecting a change in the discharge indicative of roping.

11. The roping detector of Claim 10, wherein the ultrasonic sensor produces an output signal relative to a baseline threshold which is indicative of a condition of the underflow discharge.

5 12. The roping detector of Claim 10, wherein the ultrasonic sensor is enclosed within a housing on an outer side of the side wall.

10 13. The roping detector of Claim 12, wherein the ultrasonic sensor produces an output signal relative to a baseline threshold which is indicative of a condition of the underflow discharge.